

Notice of Allowability

Application No.

09/542,222

Examiner

Fred Ferris

Applicant(s)

PURKOVIC ET AL.

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 18 April 2006.
2. ☒ The allowed claim(s) is/are 1-19.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date 06092006.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Fred Ferris
FRED FERRIS
Primary Examiner
TL 2100

DETAILED ACTION

1. *This Office Action is responsive to applicant's supplemental amendment filed 18 April 2006. Applicants have now cancelled claim 20. Amended claims 1-19 have now been allowed over the prior art of record.*

EXAMINER'S AMENDMENT

2. *An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.*

Authorization for this examiner's amendment was given in a telephone interview with Mr. Holmes Anderson on 15 March 2006.

Amend the preamble of claim 1 of applicant's claims as follows:

*"1. A channel shortening method **for training a time domain equalizer** comprising:"*

(The remaining body of the claim is as submitted)

Drawings

3. *Applicant's proposed drawing correction (replacement sheet) submitted on 2 November 2005 has been approved by the examiner. Applicants request for inclusion of color drawings for figures 5, 6, 7, 8A, and 8B as petitioned under 37 CFR 1.84 has*

also been acknowledged. However, now that claims have been allowed, formal drawings are required.

Response to Arguments

4. *Applicant's arguments filed 23 February 2006 with respect to claims 1-20 have been fully considered and found to be persuasive.*

Regarding applicant's response to 101 rejections: *The examiner withdraws the 101 rejection in view of applicant's amendment to the claims and the examiners amendment presented above.*

Regarding applicant's response to 102/rejections: *The examiner withdraws the 102 rejection of claims 1-19 in view of applicant's amendment to the claims, the examiners amendment presented above, and applicants arguments submitted 23 February 2006.*

Allowable Subject Matter

5. *Claims 1-19 are allowed over the prior art of record.*

The following is an examiner's statement of reasons for allowance:

Applicants are disclosing a method and apparatus for channel shortening inclusive of coupled first and second communications devices, transmission of training signals, determining coefficients for a time-domain equalizer, a multi-pass autoregressive averaging filter, and using the multi-channel Levinson algorithm in determining a shortened impulse response. This has been disclosed in the prior art of record.

However, the prior art does not disclose the specific combination of elements inclusive of forming a time-mirrored image of the first shortened channel impulse response, further determining a second channel impulse using a second channel modeling scheme (specification: pages 21-41), and combining the two responses to form a third response that is employed to configure a time domain equalizer as now required by amended independent claims 1 and 14. (See specification: pages 17-32, Figs. 12-15, for example)

The closest prior art uncovered during examination teaches certain limitations of the claimed invention as follows:

U.S. Patent 6,233,276 issued to Simeon: teaches a communications system inclusive of coupled first and second communications devices including transmission of training signals and determining coefficients (Levinson algorithm) for a time-domain equalizer and a multi-pass auto-regressive averaging filter in determining a shortened impulse response. However, Simeon does not explicitly disclose the specific combination of elements inclusive of forming a time-mirrored image of the first shortened channel impulse response, further determining a second channel impulse using a second channel modeling scheme, and combining the two responses to form a third response that is employed to configure a time domain equalizer as now required by amended independent claims 1 and 14.

The features noted above therefore render the claimed invention non-obvious over the prior art of record. Dependent claims 2-13 and 15-19 are deemed allowable as depending from independent claims 1 and 14 respectively.


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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

6. *Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Ferris whose telephone number is 571-272-3778 and whose normal working hours are 8:30am to 5:00pm Monday to Friday. Any inquiry of a general nature relating to the status of this application should be directed to the group receptionist whose telephone number is 571-272-3700. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached at 571-272-2279. The Official Fax Number is: (703) 872-9306*

Fred Ferris, Primary Examiner
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